

REMARKS

The applicant respectfully requests reconsideration in view of the amendment and the following remarks. Support for amended claim 1 can be found in claim 5. The applicant has incorporated claim 31 into claim 22. The applicant believes that the amendment does not raise any new issues or requires any further consideration.

Claims 22-26 and 28-30 remain rejected under 35 U.S.C. 102(b) as being anticipated by US 5,840,217 (Lupo). Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lupo. Claims 1-6, 14-17, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2003/0198831 (Oshiyama). Claims 7-10, 12 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshiyama in view of Lupo. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oshiyama in view of Lupo and further in view of "Applied Physics Letters, 2002, vol. 81, no. 4, p. 577-579" (Wu).

Rejection under 35 U.S.C. 102

Claims 22-26 and 28-30 remain rejected under 35 U.S.C. 102(b) as being anticipated by Lupo. In order to expedite prosecution the applicant has incorporated claim 31 into independent claim 22. Since claim 31 was not anticipated by Lupo this rejection should be withdrawn.

Furthermore, the rejection with respect to claim 30 appears not to be correct because claim 30 is dependent upon claim 1 and not claim 22. Therefore, claim 30 has all the limitations of claim 1 and claim 1 was not anticipated by Lupo.

Rejection of claim 31

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lupo. Lupo discloses spirobifluorene derivatives of general formula III, which can be substituted by a variety of different groups. However, Lupo does not disclose any spirobifluorene derivatives, which are

substituted by 1,3,5-triazine. This is acknowledged by the Examiner at page 5 of the Office Action. The Examiner asserts that the Lupo shows a 1,2,4-triazine but not a 1,3,5-triazine. From the formula L-1a in Lupo, it might generally be possible to construct a 1,2,4-triazine, if the following conditions apply for the symbols and indices: $n = 0$ and $m = 1$ and $X = N$ and $Y = N$ and $Z = CH=N$. This means that in total five symbols and indices have to be selected in a very specific manner to result in a substituent, which is a 1,2,4-triazine. The Examiner will note at cols. 12 and 13, Lupo discloses specific substitutes for the spirobifluorene derivatives. Not one of the substituents contains three nitrogens, let alone, not one of the substituents is a triazine. The Examiner will note that not one of the 106 spiro examples in Table 1 at columns 13 and 14, contain 3 nitrogens let alone a triazine as is required by the applicant's claimed invention. The Examiner will further note at cols. 16 and 17, Lupo discloses specific substitutes for the spirobifluorene derivatives. Not one of the substituents contains three nitrogens, let alone, not one of the substituents is a triazine. The Examiner will note that not one of the spiro examples in Table 2-5 (spiro 107-spiro 530) at columns 17 through 23, contain 3 nitrogens let alone a triazine as is required by the applicant's claimed invention. Out of the **530 examples**, there are no examples in Lupo that have the substituent as a triazine. The only groups, which are explicitly disclosed by Lupo are phenyl groups or five-membered heteroaromatic groups, such as oxazoles, but not even six-membered heteroaromatic groups in general are explicitly disclosed and in particular no six-membered heteroaromatic groups having two or three nitrogen atoms in the ring.

However, there is no possibility that a 1,3,5-triazine can be constructed by from this formula. The Examiner argues that 1,2,4-triazine and 1,3,5-triazine are considered as structural isomers having similar properties and that Lupo already discloses 1,2,4-triazine derivatives for use in OLEDs.

However, as discussed above, the applicant cannot follow the Examiners conclusion that Lupo teaches compounds of formula (2) having 1,2,4-triazine as substituent according to the present invention, even though such compounds might be embraced by the general formula. To construct such compounds, it would be necessary to very specifically select symbols and indices from five different lists (indices n and m as well as symbols X, Y and Z). However, Lupo does not disclose or even vaguely suggest this combination of symbols and indices. Furthermore, as stated above, in the groups explicitly disclosed by Lupo there are no six-membered heteroaromatic groups at all, and the only heteroaromatic groups, which are explicitly disclosed, are five-membered heteroaromatic groups.

Therefore, the person skilled in the art would not consider Lupo as a starting point when working on his invention as Lupo does not explicitly disclose any spirobifluorene derivatives substituted by six-membered heteroaromatic groups and in particular does not explicitly disclose any spirobifluorene derivatives substituted by triazine groups. Therefore, the person skilled in the art would have not indication that a spirobifluorene derivative substituted by 1,2,4-triazine might be a good starting point for further modification.

Furthermore, it is known that already minor changes in the structure of heteroaromatic substituents such as changing a 1,2,4-triazine for a 1,3,5-triazine can have considerable effects on the physical properties of a chemical compound. Therefore, the person skilled in the art would not have expected 1,2,4-triazine and 1,3,5-triazine as isomers with similar properties, which could be substituted for each other.

Additionally, the Examiner argues on page 15 of the Office Action that formula (2) according to the present invention shows generic heterocyclic rings and that the formula L-1 of Lupo is also a generic heterocyclic structure. This is no longer correct for formula (2) of

amended claim 22 wherein the heterocyclic structure is defined as 1,3,5-triazine, which therefore is no longer a generic structure.

“[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007) quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Furthermore, the Examiner cannot selectively pick and choose from the disclosed parameters without proper motivation as to a particular selection. The mere fact that a reference may be modified to reflect features of the claimed invention does not make the modification, and hence the claimed invention, obvious unless the prior art suggested the desirability of such modification. *In re Mills*, 916 F.2d 680, 682, 16 USPQ2d 1430 (Fed. Cir. 1990); *In re Fritch*, 23 USPQ2d 1780 (Fed. Cir. 1992). Thus, it is impermissible to simply engage in a hindsight reconstruction of the claimed invention where the reference itself provides no teaching as to why the applicant’s combination would have been obvious. *In re Gorman*, 933 F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991).

Rejections Over Oshiyama

Claims 1-6, 14-17, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshiyama. Claims 7-10, 12 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshiyama in view of Lupo. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oshiyama in view of Lupo and further in view of Wu.

Oshiyama discloses an organic electroluminescent device wherein the hole blocking layer comprises a pyrimidine or a triazine derivative. As the Examiner has stated at page 6 of the Office Action, Oshiyama does not disclose that the pyrimidine or triazine derivative is a 9, 9'-spirobifluorene derivative, a 9, 9'-disubstituted fluorene derivative, a 6,6- and/or 12,12-di- or tetrasubstituted indenofluorene derivative, a tetraarylmethane derivative or a triptycene

derivative. Oshiyama additionally does not disclose pyridazine derivatives or pyrazine derivatives and does furthermore not disclose that the triazine derivative is a 1,3,5-triazine.

Even though Lupo might generally embrace spirobifluorene derivatives substituted with 1,2,4-triazine, Lupo does not explicitly teach spirobifluorene derivatives substituted with 1,2,4-triazine, as discussed in detail above. As stated above, Lupo does not teach or suggest spirobifluorene derivatives substituted with 1,3,5-triazine. Therefore, the person of ordinary skill in the art would not have considered the teaching of Lupo as relevant when working on his invention. This is even more the case as Lupo relates only to fluorescent OLEDs, but not to phosphorescent OLEDs.

A statement that modifications of the prior art to meet the claimed invention would have been “obvious to one of ordinary skill in the art at the time the invention was made” because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993).

The combination of Oshiyama with Lupo would therefore only be possible with a retrospective view having knowledge of the present invention and the person skilled in the art would have no motivation whatsoever to combine the disclosure of Oshiyama with the disclosure of Lupo.

However, the material according to claim 1 is particularly efficient as hole blocking material in a hole blocking layer of a phosphorescent organic electroluminescent device. This is illustrated in the examples of the present application. As is shown in Table 1 and page 20 of the applicant's specification, electroluminescent devices according to the invention show a higher efficiency, in particular higher power efficiency, a lower voltage and at the same time a high

operative lifetime when compared to electroluminescent devices according to the state of the art. The results are even better for the inventive devices when no separate electron transporting layer is used. This means the more efficient devices can be produced, which even has simplified device architecture. In contrast, the performance of the devices according to the state of the art decreases when no separate electron transporting layer is used. For the above reasons, these rejections should be withdrawn.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Applicant believes no additional fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 14113-00012-US from which the undersigned is authorized to draw.

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Respectfully submitted,

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